Title (en)

ENERGY EFFICIENT HIGH POWER PLASMA TORCH

Title (de)

ENERGIEEFFIZIENTER HOCHLEISTUNGSPLASMABRENNER

Title (fr)

TORCHE À PLASMA HAUTE PUISSANCE ÉCOÉNERGÉTIQUE

Publication

EP 3143845 A4 20180314 (EN)

Application

EP 15793081 A 20150519

Priority

- US 201461994672 P 20140516
- CA 2015000325 W 20150519

Abstract (en)

[origin: WO2015172237A1] An apparatus is disclosed wherein an electric arc is employed to heat an injected gas to a very high temperature. The apparatus comprises four internal components: a button cathode and three cylindrical co-axial components, a first short pilot insert, a second long insert and an anode. Vortex generators are located between these components for generating a vortex flow in the gas injected in the apparatus and which is to be heated at very high temperature by the electric arc struck between the anode and cathode. Cooling is provided to prevent melting of three of the internal components, i.e. the cathode, the anode and the pilot insert. However, to limit the heat loss to the cooling fluid, the long insert is made of an insulating material. In this way, more electrical energy is transferred to the gas.

IPC 8 full level

H05H 1/34 (2006.01); H05H 1/28 (2006.01)

CPC (source: EP US)

H05H 1/34 (2013.01 - EP US); **H05H 1/3421** (2021.05 - EP); **H05H 1/3452** (2021.05 - EP); **H05H 1/3468** (2021.05 - EP); **H05H 1/3494** (2021.05 - EP); H05H 1/3421 (2021.05 - US); H05H 1/3452 (2021.05 - US); H05H 1/3468 (2021.05 - US); H05H 1/3494 (2021.05 - US)

Citation (search report)

- [Y] WO 2006058258 A1 20060601 - BELASHCHENKO VLADIMIR [US]
- [Y] GB 1268843 A 19720329 - BRITISH RAILWAYS BOARD [GB]
- [Y] US 2005284374 A1 20051229 - MIEBACH THOMAS [US], et al
- [Y] DE 102011114406 A1 20130328 - LANDES KLAUS [DE]
- [A] CZ 20101002 A3 20120711 - ASTAV FYZIKY PLAZMATU AKADEMIE VED CESKU REPUBLIKY [CZ]
- [A] WO 2004028221 A1 20040401 - SMATRI AB [SE], et al
- [A] US 6525292 B1 20030225 - GIROLD CHRISTOPHE [FR]
- [A] US 4587397 A 19860506 - CAMACHO SALVADOR L [US], et al

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

WO 2015172237 A1 20151119; AU 2015258742 A1 20170112; AU 2021200689 A1 20210304; AU 2022291468 A1 20230202; CA 2948681 A1 20151119; EP 3143845 A1 20170322; EP 3143845 A4 20180314; JP 2017521814 A 20170803; JP 2021015810 A 20210212; JP 2023060181 A 20230427; JP 6887251 B2 20210616; JP 7271489 B2 20230511; US 2017086284 A1 20170323

DOCDB simple family (application)

CA 2015000325 W 20150519; AU 2015258742 A 20150519; AU 2021200689 A 20210203; AU 2022291468 A 20221220; CA 2948681 A 20150519; EP 15793081 A 20150519; JP 2016568013 A 20150519; JP 2020187867 A 20201111; JP 2023033602 A 20230306; US 201515311466 A 20150519